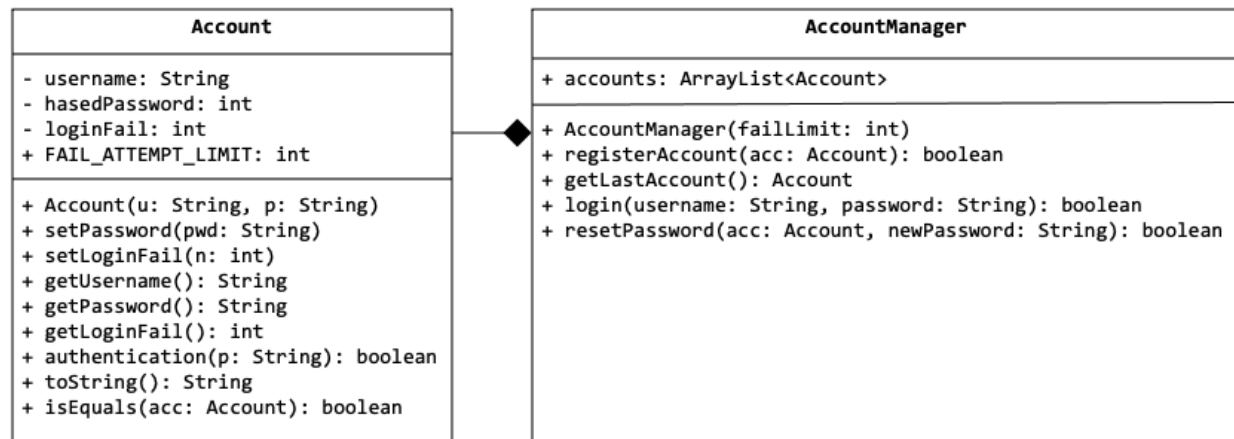


Question 2 [40 Points]

Three files (`Account.java`, `AccountManager.java`, and `AccountTester.java`) are given. **DO NOT modify there two classes `Account` and `AccountTester`.** Your task is to complete `AccountManager` class to manage the `Account` class as shown in the class diagram below. Details of the `Account` class is provided in the comment inside `Account.java` file. You should read and understand this class first.



Instance Field (5 points)

- Declare `accounts` variable as an arraylist of `Account` with public access modifier

Constructors (5 points)

- `AccountManager`
 - Initialize the `accounts` arraylist
 - Assign the value of `failLimit` to the static variable `FAIL_ATTEMPT_LIMIT` in the `Account` class

Methods (30 points)

- `registerAccount`
 - To add a new account into the `accounts` arraylist and return true.
 - If the username of the new account already exists or the given account is null, do nothing and return false.
- `getLastAccount`
 - To return an account object at the last index of the arraylist.
 - If the arraylist is empty, return null.

- login
 - To validate the given username and password with all accounts in the arraylist.
 - *Hint! you should use provided method in Account class to facilitate in this method.*
 - If both username and password are matched with any account in the arraylist, the login is valid. This method has to set the loginFail attribute of the matched account to 0 and return true.
 - If the username is found in the arraylist but the password is incorrect, the login is failed. This method must increase loginFail value of the found account by one and return false. In addition, when the loginFail is higher than the FAIL_ATTEMPT_LIMIT value, a warning message must be displayed (see expected result).
 - If the username does not exist in the arraylist, do nothing and return false.
- resetPassword
 - To reset a new password of the given account.
 - If the given account is equals (both username and password are matched) to any account in the arraylist, set a new password for that particular account and return true. Otherwise, return false.
 - Note! Unlike login method, you don't have to modify the loginFail value.

Expected Output

```
[00] fail attempt limit is 2, and construct object successfully

[01] abc:-547657670, register successfully
[02] xyz:2172992, register successfully
[03] Sorry, abc username already exists!
[04] Sorry, cannot register NULL account

[05] abc login successfully
[06] xyz login successfully
[07] xyz login failed (1)
[08] xyz login failed (2)
WARNING: xyz too many failed login attempts
[09] xyz login failed (3)

[10] Couldn't reset password with account abc:1055622836
[11] Reset password successfully
[12] abc login successfully
```

Test Cases (Optional)

You may use the given unit test (*TestCase.java*) to faster test your program.

File to submit: AccountManager.java

(Put your name, studentID and section in the comment at the top of the submitted file)